

REMARKS

The Specification for the above-identified application has been amended to correct grammatical and typographical errors. A marked-up version of the Specification is submitted as "Attachment A - Marked-Up Version of Specification." Entry of this Preliminary Amendment is respectfully requested.

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Respectfully submitted,



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ATTACHMENT A - MARKED-UP VERSION OF SPECIFICATION

This is an attachment showing the marked-up version of the Specification.

In the Specification

Rewrite the paragraph starting at page 1, line 24 and ending at page 2, line 17 as follows:

— Currently, photographs are used in personal authentication of driver's licenses and passports. Photographs attached to driver's licenses and passports allow quick comparison and discrimination with lineaments of the driver's license or passport holders. However, when driver's licenses and passports have long valid periods, the lineaments change during such periods, and it often becomes difficult to discriminate. Taking a passport having a valid period of 10 years as an example, the lineament of a given person may change drastically upon growing up from a child to an adult or due to aging so one can only guess "what he or she [was] used to be". The lineament changes due to not only an elapse of time but also various factors such as hair styles, the presence/absence of glasses, face-list, diseases, accidents, habits of body (fatness, or the like), and so on, and the impression it gives may often turn around. However, it is too troublesome to revalidate driver's licenses every year. Hence, misuse such as forgery of driver's licenses and passports due to such problems cannot be exterminated. --.

Rewrite the paragraph starting at page 6, line 20 and ending at page 6, line 23 as follows:

-- Japanese Patent Laid-Open No. 2000-94873 also describes a method using a retinal image as vital information, which suffers from a large information size as in the aforementioned method. --.

Rewrite the paragraph starting at page 9, line 16 and ending at page 10, line 5 as follows:

-- According to another aspect of the present invention, there is provided an authentication system [for an authentication system] for personal authentication, comprising storage means for storing registration information which includes layout information that represents a layout pattern of hybridized probes obtained by reacting a DNA array on which a plurality of probes are arranged with DNA of a given person, acquisition means for acquiring the layout information from an authentication certificate, generation means for generating authentication information on the basis of the layout information acquired by the acquisition means, and authentication means for making authentication by collating the authentication information generated by the generation means with the registration information stored in the storage means. --.

Rewrite the paragraph starting at page 16, line 3 and ending at page 16, line 21 as follows:

-- The aforementioned personal authentication requires at least about one thousand probes. This value corresponds to the number of MHC genes found so far. However, new genes are found one after another, and the number of genes will further increase. These new genes can

be used as probes. The MHC genes never change along with age. This is also a required element suitable for personal authentication. The value which is appropriate as the number as the number of probes required for personal authentication ranges from 1,000 to 10,000. It is important for this authentication system to mount all types of sequences required for personal authentication, and the number of types is assumed to fall within the range from 1,000 to 10,000. Furthermore, the price of each array must be low. When such a small number of probes [are] is used, the price of the DNA microarray can be reduced. However, a high-density DNA microarray may be used to satisfy a precision requirement. --.

Rewrite the paragraph starting at page 21, line 19 and ending at page 21, line 24 as follows:

-- Upon completion of [write] writing of the digital information, digital information of the hybridization pattern in the reader is erased by an information eraser 108 (step S413). This erasure may be made manually by the person to be authenticated or automatically. --.

Rewrite the paragraph starting at page 27, line 25 and ending at page 28, line 7 as follows:

-- This method is easy for, e.g., an aged person who is not accustomed to [operate] operating a device since the user does not make any reaction operation by himself or herself, but information may leak and pose a security concern. To solve this problem, an information eraser 526 for erasing the data on the reader 525 used in generation of the authentication

certificate automatically or manually by the user is provided, and the data that pertains to the hybridization pattern is erased (step S413). --.

Rewrite the paragraph starting at page 29, line 18 and ending at page 30, line 13 as follows:

-- When personal DNA microarray pattern data is converted into digital information and is written as digital information such as magnetic information, optical information etc., on a card or t like (to be referred to as a user authentication certificate hereinafter), and that card is registered as authentication certificate, authentication on each user's computer can be made using that authentic certificate. In such case, no scanner is required as [an] authentication equipment, and a device (e.g card reader) that reads information (information representing the hybridization pattern) written in t user authentication certificate by some method is connected instead. When the user authentication certificate is used, the operation is the same as that upon directly using the DNA microarray. That the user sends data which represents the hybridization pattern to the partner's computer via the Intu in the first transaction, and registers the data. In the second and subsequent transactions, digital information exchange or electronic commercial transaction is done by collating the registered data that sent by the user. --.